SIP 480i IP Phone
Administration Guide

Release Version 1.2.1.1002

Revised: July 2005

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Overview

This *SIP 480i IP phone Administration Guide* provides information on the basic network setup that is required for the SIP 480i IP phone. It also includes details on the functioning and configuration of the 480i phone.

General Requirements

- A SIP based IP PBX system or network installed and running with a number created for the new 480i phone.
- SIP standard "RFC 3261"
- Access to a Trivial File Transfer Protocol (TFTP) server.
- 802.3 Ethernet/Fast Ethernet LAN.
- Category 5/5e straight through cabling.
- Power over Ethernet (PoE) power supply (optional accessory – necessary only if no inline power is provided on the network).

About this Guide

This guide targets network administrators, system administrators, developers and partners who need to understand how to install the 480i on a SIP network. This guide contains information that is at a technical level suitable for system or network administrators. Prior knowledge of SIP and IP Telephony concepts is recommended. This guide complements the ***Aastra 480i IP Phone Installation Guide*** and the ***Aastra SIP 480i IP Phone User Guide.***

- ***Aastra 480i IP Phone Installation Guide*** – contains installation and set-up instructions, information on general features and functions, and basic options list customization.

- ***Aastra SIP 480i IP Phone Administration Guide***– explains how to set the phone up on the network, as well as advanced configuration instructions for the 480i. This guide contains information that is at a technical level more suitable for a system or network administrator.

- ***Aastra SIP 480i IP Phone User Guide–*** explains the most commonly used features and functions for an end user.

Methods of Installation

The firmware set up and installation for the 480i can be done through the Options List available directly from the phone or through the **Aastra 480i Web Client** web interface. When the 480i is initialized for the first time, DHCP is enabled by default. The DHCP server passes information to the 480i so that it can configure itself for subsequent IP PBX addresses and normal runtime operations.

The following considerations must be made before connecting the 480i phone to the network:

- If you are planning on using Dynamic IP addresses, make sure a DHCP server is running on your network.
- If you are not planning on using Dynamic IP addresses, refer to the section "Configuring the 480i IP Phone" on how to set up an IP address manually.
- Make sure a TFTP server is set up on your network and can accept connections anonymously.
- Every PBX system that interacts with the 480i phones requires adherence to the SIP Standard.

To find out how to hook up the cabling to your 480i phone, please refer to the *Aastra 480i IP Phone Installation Guide.*

480i IP Phone Set up

When the 480i is first plugged in or reset it will automatically download any firmware updates for the phone. The binary and configuration files that are required for the 480i are: "firmware.st", "aastra.cfg" and "<mac>.cfg". The settings of the 480i phone, as well as the softkeys and the additional line keys, can be configured through the configuration files. Please refer to Appendix A for details on the parameters that can be set for the 480i phone. Please refer to Appendix B for sample configuration files with all the basic parameters that need to be set in order to register the IP phone at the PBX.

The following steps illustrate a typical 480i phone setup:

1. If DHCP is disabled, manually enter the TFTP server's IP address. For details on how to set the TFTP server setting for the 480i, please refer to the section "Configuring the 480i IP Phone".

2. Copy the firmware file "firmware.st" to the root directory of the TFTP server. This firmware file is downloaded only when it is different than the one the phone is currently using.

3. Copy the Aastra configuration file "aastra.cfg" and "<mac>.cfg" file to the root directory of the TFTP server.

NOTE: <mac> represents the actual MAC address of your phone which must be input; i.e. 00085D030996.cfg

The 480i's Options List

1. Press the Options button on the phone to enter the options list.
2. Use the ▲ and ▼ to scroll through the list of options.
3. Press the **Show** softkey, the ▶ button or press the number corresponding to the option to select an option.
4. Use the softkeys to change a selected option.
5. Press the **Done** softkey at any time to save the change and exit the current option.
6. Press the **Cancel** softkey, the ◀ button or the Goodbye button at any time to exit without saving the changes.

Administrator Level Options

Some options in the phone's options list are considered administrator level options and require the administrator user name and password. When attempting to access administrator level options, the phone will prompt for the administrator password before allowing access. The default administrator password is "**22222**". For all other phone options, please refer to the *Aastra 480i IP Phone Installation Guide*.

The administrator level options in the phone's Options List are:

- "8.Network"
- "9.SIP Settings"
- "4.Factory Default" found under option "10.Phone Status"

Network:

If DHCP is enabled, all the Network settings are automatically configured. The 480i's firmware allows the network settings to be manually entered, if for any reason the phone cannot populate any of the settings with DHCP enabled. If DHCP is disabled the following network settings can be configured manually:

1. **DHCP**
   This turns DHCP on or off. IP Address, Subnet Mask and Gateway options are automatically populated and are read-only when DHCP is used. DHCP is used by default.

2. **IP Address**
   This is the phone's IP address. To assign a static IP address to the phone, disable DHCP.

3. **Subnet Mask**
   To assign your own subnet mask to the phone, disable DHCP.

4. **Gateway**
   To assign your own gateway IP address, disable DHCP.

5. **DNS**
   To assign your own DNS addresses, disable DHCP.

6. **TFTP Server**
   This allows you to select the TFTP server that the phone will use. There are three menu sub-options:

1. **Primary TFTP**: This is the IP address of the TFTP server that the phone will use by default. If the TFTP address is obtained through DHCP, it will override this setting. If DHCP is ON, the primary TFTP is read only.
2. **Alternate TFTP**: This allows you to configure an alternate TFTP to use instead of the primary server.
3. **Use Primary/Use Alternate**: This selects which TFTP server the phone will attempt to obtain configuration from.

SIP Settings:

If you have a proxy server or have a SIP registrar present at a different location than the PBX server, the following settings may need to be changed:

1. **Proxy IP**
   This is the IP address of the proxy server.
2. **Proxy Port**
   This is the SIP proxy server's port number. By default this number is set to 5060.
3. **Registrar IP**
   This is the IP address of the SIP registrar.
4. **Registrar Port**
   SIP registrar's port number. By default this is set to 5060.
5. **Register**
   This enables and disables registration of the IP phone with the Registrar.
   If **YES** is selected, the phone's IP address is immediately registered in the Registrar's database. If **NO** is selected, the SIP phone's IP address is immediately deleted from the Registrar's database, and the phone's screen displays "No Service".
6. **User Name**
   This is used in the name field of the SIP URI for the 480i phone and for registering the 480i at the registrar.
7. **Display Name**
   This is used in the display name field of the *From* SIP header field. Some IP PBX systems use this as the caller's ID and some may overwrite this with the string that is set at the PBX system.
8. **Screen Name**
   This is used to display text on the screen of the phone. You may want to set this parameter to display the phone user's name.
9. **Auth Name**
   This is the authentication name that is used in the username field of the authorization header field. This allows the phone to identify itself to a proxy server that requires authentication. When the phone is challenged for authorization, it will re-send the challenged message with the authentication name and password.
10. **Password**
    This is the authorization password that is used to register at the SIP registrar. When the phone is challenged for authorization, it will re-send the challenged message with the authentication name and password.

11. Nortel

This is used to specify if a Nortel NAT is being used. Select "Yes" to enable this feature if using a Nortel call server.

Phone Status:

The following options display the phone's status or allow you to power cycle the phone or reset the phone to its factory default settings.

1. **Network Status**
   This shows the network status of the two Ethernet ports at the back of the phone. You can also view the phone's IP and MAC addresses.

   - **IP Addr**
     Shows the IP address of the phone.
   - **MAC Addr**
     The MAC or the hardware address of the 480i's Ethernet card.

2. **Firmware Version**
   This option displays information about the firmware that is currently installed on the 480i.

3. **Restart Phone**
   This option lets you restart the phone. A restart may be necessary when:

   - There is a change in your network, or
   - To re-load the configuration information modified through the configuration files to the phone, or
   - If the settings for the 480i on the IP PBX system had been modified.

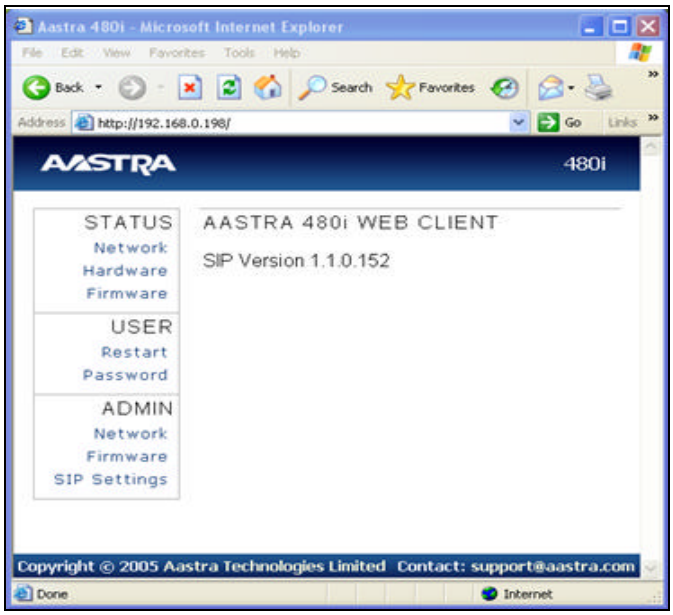
4. **Factory Default**
   This option lets you reset the phone back to the factory default settings, including the network settings.

   NOTE: Performing this operation will result in losing all user modified settings.

For information on other settings in the options list of the phone, please refer to the *Aastra 480i IP Phone Installation Guide* provided with the 480i.

The Aastra 480i Web Client

To access the **Aastra 480i Web Client**, open your web browser (supports Internet Explorer and Gecko engine based browsers like Firefox, Mozilla or Netscape) and enter the phone's IP address into the address field, starting with the web prefix "http://".



In the side menu of the **Aastra 480i Web Client**, there are three main categories: Status, User and Admin.

- The **STATUS** category contains read only status information for sub-categories Network, Hardware and Firmware.

- The **USER** category contains user configurable sub-categories Reset and Password. This section is accessed through the user level or the administrator level user name and password. You will be prompted for this information when one of these options is selected. For more information, refer to the *Aastra SIP 480i IP Phone User Guide*.

- The **ADMIN** category contains administrator only configurable sub-categories: Network, Firmware and SIP Settings. This section is accessed through the admin level user name and password. You will be prompted for this information when one of these options is selected. For more information, refer to the section "Configuring the 480i IP phone" of this document.

The default for the administrator user name is "**admin**" and the password is "**22222**". For a user, the default user name is "**user**" and the password field is left blank. The user and administrator level passwords can be changed using the web client, or through the configuration files.

480i IP Phone Configuration

The Network and SIP options within the 480i phone can be configured from the phone or from the **Aastra 480i Web Client** web interface. Some options can also be set through the configuration files. Administrator level options are password protected in both the phone and the web interface.

Network

DHCP automatically sends the IP address, Subnet Mask and Gateway network (also DNS and TFTP Server) information to the 480i phone during initialization when the phone is first powered up or reset. By default, the DHCP setting is enabled. The network settings cannot be changed when DHCP is used, so DHCP must be set to "Off" in order to manually change these settings.

Turn DHCP On or Off

From the 480i Phone:

1. Press the Options button to enter the Options List.
2. Select option **8. Network**.
3. Enter the administrator's password. The default password is **22222**.
4. Press the **Enter** softkey.
5. Select option **1. DHCP**.
6. Press the **Change** softkey to indicate whether DHCP should be used or not.
7. Press the **Done** softkey to save the changes.

From the Web Client:

1. Click on the Network sub-category under the ADMIN main category.
2. Enter the administrator's user name and password (the default name is "admin" and password is "22222").
3. In the web page that has just opened check the **Use DHCP** check box to use DHCP and uncheck to indicate that you do not want to use DHCP.
4. Click on the **Set Values** button to save the changes that you just made.

Manually Configure Network Settings

If you are not using DHCP, you need to configure the network settings for the phone manually.

From the 480i Phone:

1. Press the Options button to enter the Options List.
2. Select option **8. Network**.
3. Enter the administrator's password. The default password is 22222.
4. Select option **2. IP Address** to change the IP address.
5. Select option **3. Subnet Mask** to change the subnet mask.
6. Select option **4. Gateway** to change the gateway address.
7. Select option **5. DNS** to change the DNS.
8. Press the **Done** softkey to save the changes.

When an IP address has been assigned to the phone, you have the option to either continue configuring the 480i through the Options button on the phone or to start using the **Aastra 480i Web Client**. See the section "The Aastra 480i Web Client" within this guide for details.

From the Web Client:

1. Click on the **Network** sub-category under the **ADMIN** main category.
2. Enter the administrator's user name and password (the default user name is "admin" and password is "22222").
3. In the web page that has just opened enter the IP address of the phone, the Subnet Mask and the Gateway IP address in their corresponding fields.

TFTP Server Settings

The 480i phone uses the TFTP server to download updates of the phone's firmware and configuration files. You must set the TFTP server address in the phone.

From the 480i Phone:

1. Press the Options button to enter the Options List.
2. Select option **8. Network**.
3. Enter the administrator's password. The default password is **22222**.
4. Select option **6. TFTP Server** to change the TFTP server.
5. You will see three options: **Primary TFTP, Alternate TFTP,** and **Use Primary/Use Alternate**. If DHCP is on, the **Primary TFTP** is read-only. To manually configure the TFTP address, select **Alternate TFTP**. Select **Use Primary/Use Alternate** to choose between the primary and alternate TFTP server.

From the Web Client:

1. Click on the **Network** sub-category under the **ADMIN** main category.
2. Enter the administrator user name and password (the default user name is "admin" and password is "22222").
3. In the TFTP field, enter the IP address of the TFTP server.
   If DHCP is off, set TFTP to the primary address. If DHCP is on, and you would like to manually configure the TFTP server address, set it in the alternate TFTP field, and check the **Use Alternate TFTP** checkbox.
4. Click on the **Set Values** button to save the changes that you just made.

SIP settings

The 480i uses the information in the SIP settings to register at the IP PBX. To configure the SIP settings:

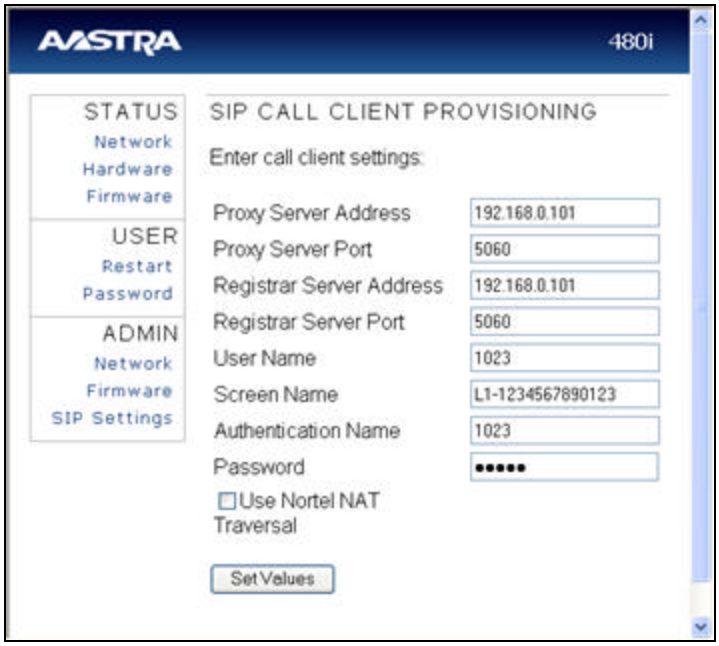
From the 480i Phone:

1. Press the Options button to enter the Options List.
2. Select option **9. SIP Settings**.
3. Enter the administrator's password. The default password is 22222.

4. Select options **1-5** to change the information about the registrar and the proxy server.
5. Select option **6. User Name** to change the user name.
6. Select option **7. Display Name** to change the display name.
7. Select option **8. Screen Name** to change the screen name.
8. Select option **9.Auth. Name to** change the authentication name
9. Select option **10. Password** to change the user's password.
10. Select option **11. Nortel** to identify if a Nortel call server is being used.

From the Web Client:

1. Click on the SIP Settings sub-category under the ADMIN main category.
2. Enter the administrator user name and password (the default user name is "admin" and password is "22222").
3. In the web page that just opened enter the appropriate information.
4. Click on the **`Set Values`** button to save the changes that you just made.



NOTE: At this point modifications performed to the User name, Screen name, Authentication name and Password affect line 1 of the 480i only. Modifications to the other lines should be done through the <mac>.cfg file.

Setting Parameters through Configuration Files

The following are the parameters that can be used to configure the 480i phone through the configuration files - aastra.cfg and <mac>.cfg. The "aastra.cfg" file configures the settings server wide, while the <mac> configures only the phones with the MAC address for which the file is named. The settings in the "aastra.cfg" file will be overridden by the settings that also appear in the <mac> cfg file.

Network Settings:

The following section contains the parameters to configure the network settings.

Parameter	*dhcp*	Configurable through the 480i's Options List, the Aastra 480i web client or through the configuration files
Description		Enabling dhcp will populate most of the network information. The network information that the 480i requires should be served by the dhcp server. If the 480i is unable to get any required information then it should be entered manually. Parameters affected: ip
Format		Integer
Default Value		1
Range		0 or 1
Example		dhcp: 1

Parameter	*ip*	Configurable through the 480i's Options List, the Aastra 480i web client or through the configuration files
Description		This parameter assigns a static IP address to the 480i device.
Format		IP address
Default Value		0.0.0.0
Range		Not Applicable
Example		ip: 192.168.0.25

Parameter	*subnet mask*	Configurable through the 480i's Options List, the Aastra 480i web client or through the configuration files
Description		The subnet mask IP address.
Format		IP address
Default Value		255.255.255.0
Range		Not Applicable
Example		subnet mask: 255.255.255.224

Parameter	*default gateway*	Configurable through the 480i's Options List, the Aastra 480i web client or through the configuration files
Description		The IP address of the network's gateway or the router IP address
Format		IP address
Default Value		1.0.0.1
Range		Not Applicable
Example		default gateway: 192.168.0.1

Parameter	*dns1*	Configurable through the 480i's Options List, the Aastra 480i web client or through the configuration files
Description		Primary domain name servers' IP address. For any of the IP address settings on the 480i a domain name value can be entered instead of an IP address. With the help of the domain name servers the domain names for such parameters can then be resolved to their corresponding IP addresses.
Format		IP address
Default Value		0.0.0.0
Range		Not Applicable
Example		dns1: 192.168.0.5

Parameter	*dns2*	Configurable through the 480i's Options List, the Aastra 480i web client or through the configuration files
Description		Secondary domain name servers' IP address.
Format		IP address
Default Value		0.0.0.0
Range		Not Applicable
Example		dns2: 192.168.0.6

Parameter	*sip rtp port*	Configurable through the configuration files only
Description		Indicates the port through which the RTP packets will be sent to. The RTP port is used for sending DTMF tones and for the audio stream. Your network administrator may close some ports for security reasons. You may want to use this parameter to send RTP data using a different port.
Format		IP address
Default Value		3000
Range		Not Applicable
Example		sip rtp port: 5130

Setting Parameters – Time Server Settings

The following section contains the parameters to configure settings specific to the timeserver.

Parameter	*time server disabled*	Configurable through the 480i's Options List or the configuration files
Description		This parameter enables or disables the time server. This parameter affects the time server1, time server2 and time server3 parameters.
Format		Boolean
Default Value		0
Range		0 or 1
Example		time server disabled: 0

Parameter	*time server1*	Configurable through the 480i's Options List or the configuration files.
Description		The primary time server's IP address. If the time server is enabled, the value for time server1 will be used to request the time from.
Format		IP address
Default Value		0.0.0.0
Range		Not Applicable
Example		time server1: 192.168.0.5

Parameter	*time server2*	Configurable through the configuration files only
Description		The secondary time server's IP address. If the time server is enabled, and the primary time server is not configured or cannot be accessed the value for time server2 will be used to request the time from.
Format		IP address
Default Value		0.0.0.0
Range		Not Applicable
Example		time server2: 192.168.0.5

Parameter	*time server3*	Configurable through the configuration files only
Description		The tertiary time server's IP address. If the time server is enabled, and the primary and secondary time servers are not configured or cannot be accessed the value for time server3 will be used to request the time from.
Format		IP address
Default Value		0.0.0.0
Range		Not Applicable
Example		time server3: 192.168.0.5

Parameter	*time format*	Configurable through the 480i's Options List or the configuration files
Description		This parameter changes the time to 12 hour or 24 hour format. Use “0” for the 12 hour format and “1” for the 24 hour format.
Format		Integer
Default Value		0
Range		0 or 1
Example		time format: 0

Parameter	*date format*	Configurable through the 480i's Options List or the configuration files
Description		This parameter allows the user to change the date to various formats.
Format		Integer
Default Value		0
Range		0-7 Following table shows the format for the corresponding *date format* values: 0: WWW MMM DD 1: DD-MMM-YY 2: YYYY-MM-DD 3: DD/MM/YYYY 4: DD/MM/YY 5: DD-MM-YY 6: MM/DD/YY 7: MMM DD
Example		date format: 7

Setting Parameters – SIP Settings

The following parameters are the settings specific to SIP authentication.

Parameter	*sip proxy ip*	Configurable through the 480i's Options List, the Aastra 480i web client or through the configuration files
Description		A SIP proxy is a server that makes and forwards requests generated by the 480i to the targeted user. This parameter's IP address will be the address of the proxy server that the 480i will use to send all SIP requests to.
Format		IP address
Default Value		0.0.0.0
Range		N/A
Example		sip proxy ip: 192.168.0.101

Parameter	*sip proxy port*	Configurable through the 480i's Options List, the Aastra 480i web client or through the configuration files
Description		The proxy server's port number
Format		Integer
Default Value		0
Range		Not Applicable
Example		sip proxy port: 5060

Parameter	*sip registrar ip*	Configurable through the 480i's Options List, the Aastra 480i web client or through the configuration files
Description		A SIP registrar is a server that maintains the location information of the 480i phone. This parameter's IP address will be the address of the registrar that the 480i will use to send REGISTER requests to.
Format		IP address
Default Value		0.0.0.0
Range		Not Applicable
Example		sip registrar ip: 192.168.0.101

Parameter	*sip registrar port*	Configurable through the 480i's Options List, the Aastra 480i web client or through the configuration files
Description		The registrar's port number
Format		Integer
Default Value		0
Range		Not Applicable
Example		sip registrar port: 5060

Parameter	*sip lineN auth name*	Configurable through the configuration files. Configurations done through the 480i's Options List or the Aastra 480i web client affect the first line only.
Description		The authorization name that will be used in the *username* field of the *Authorization* header field of the SIP *REGISTER* request.
Format		Text
Default Value		Not Applicable
Range		*N* in the *sip lineN auth name* ranges from 1 to 9
Example		sip line1 auth name: 1001

Parameter	*sip lineN password*	Configurable through the configuration files. Configurations done through the 480i's Options List or the Aastra 480i web client affect the first line only.
Description		The password that will be used to register at the registrar.
Format		Text
Default Value		Not Applicable
Range		*N* in the *sip lineN password* ranges from 1 to 9
Example		sip line1 password: 12345

Parameter	*sip lineN user name*	Configurable through the configuration files. Configurations done through the 480i's Options List or the Aastra 480i web client affect the first line only.
Description		The value for this parameter is used in the name field of the SIP URI for the 480i phone and for registering the 480i at the registrar.
Format		Text
Default Value		Not Applicable
Range		*N* in the *sip lineN user name* ranges from 1 to 9
Example		sip line1 user name: 1001

Tip: When entering the parameter “sip line1 user name: 5551231234", do not use formatting symbols such as “-” (555- 123-1234) to format the number as the phone does not recognize symbols.

Parameter	*sip lineN display name*	Configurable only through the configuration files.
Description		This is used in the display name field of the *From* SIP header field. Some IP PBX systems use this as the caller's ID and some may overwrite this with the string that is set at the PBX system.
Format		Text
Default Value		Not Applicable
Range		*N* in the *sip lineN display name* ranges from 1 to 9
Example		sip line1 display name: Jane Jones

Parameter	*sip session timer*	Configurable through the 480i's Options List, the Aastra 480i web client or through the configuration files
Description		This session timer parameter is the time in seconds that the 480i uses to send periodic re-*INVITE* requests to keep a session alive. The proxy uses these re-*INVITE* requests to maintain the status' of the connected sessions.
Format		Integer
Default Value		0
Range		Not Applicable
Example		sip session timer: 30

Parameter	*sip lineN screen name*	Configurable through the configuration files. Configurations done through the 480i's Options List or the Aastra 480i web client affect the first line only.
Description		This is used to display text on the screen of the phone. You may want to set this parameter to display the phone user's name.
Format		Text
Default Value		Not Applicable
Range		*N* in the *sip lineN screen name* ranges from 1 to 9
Example		sip line1 screen name: Jane Jones

Parameter	*sip digit timeout*	Configurable through the configuration files only
Description		Represents the time in seconds to configure the timeout between consecutive key presses.
Format		Integer
Default Value		4
Range		Not Applicable
Example		sip digit timeout: 6

Parameter	*sip registration period*	Configurable only through the configuration files.
Description		The time in seconds that the 480i should use to send re-registration requests to the registrar. The value of this parameter will be used in the *expires* header field value in the SIP *REGISTER* request.
Format		Integer
Default Value		0
Range		Not Applicable
Example		sip registration period: 3600

Parameter	*sip nortel nat support*	Configurable through the Options List, the Aastra web client or through the configuration files
Description		This parameter allows the phone user to specify whether they are behind a Nortel NAT. Enable this feature if using a Nortel call server.
Format		Boolean
Default Value		0
Range		0-1 (1:true)
Example		sip nortel nat support: 1

Parameter	*sip nortel nat timer*	Configurable through the configuration files only
Description		This parameter is used to specify the time in seconds for the refresh period for the connection through the Nortel NAT.
Format		Integer
Default Value		60
Range		Not Applicable
Example		sip nortel nat timer: 120

Setting parameters – Softkey Settings:

This section describes the softkey parameters that can be configured on the 480i phone. There are eighteen softkeys that can be configured. These parameters can be configured either from the Aastra.cfg or the <mac>.cfg file, depending upon whether you wish the settings to be server wide (Aastra.cfg) or phone-specific (<mac>.cfg).

Softkeys can be configured as **additional call/line appearances, speed dials**, or **dnd (**Do Not Disturb**).** Each soft key has three mandatory parameters: **type**, **label**, and **value**.

Softkey Type	Label	Value
line (additional line/call appearances)	Any alphanumeric string, except "#", "", less than 8 characters (If left blank, the phone automatically gives the label "Line x", where x is the line number)	5 up to 9 (1-4 are already hardcoded as the L1, L2, L3 and L4 hard key line/call appearances).
speeddial	Any alphanumeric string, except "#", "", less than 10 characters	[1-9*#, E]/Any SIP address (If a # is desired in a speed dial, the speed dial must be enclosed in double quotation marks)
dnd (do not disturb)	None	None (the phone automatically populates these fields)

The meaning of the character used in the value field is:

Value Character	Meaning
1-9*#	Same meaning as the keypad keys
,	500ms pause
E	On-hook

Softkey Parameters

NOTE: Softkey parameters are case-sensitive**.**

Parameter	*softkeyN type*	Configurable through the configuration files only
Description		The type of soft key that will be configured.
Format		Text
Default Value		Not Applicable
Range		*line, speeddial, empty, dnd. N* in the *softkeyN type* ranges from 1 to 18
Examples		softkey1 type: line softkey2 type: speeddial softkey3 type: dnd

Parameter	*softkeyN label*	Configurable through the configuration files only
Description		The text label that should be displayed for the soft key. If the soft key is of *line* type an icon appears beside the soft key that indicates the status of the line that this soft key is configured to.
Format		Text
Default Value		Not Applicable
Range		Sequence of ascii characters. A width less than 11 characters for *line* softkey type and a width less than 9 for the *speeddial* softkey type is suggested. *N* in the *softkeyN label* ranges from 1 to 18
Examples		softkey1 label: "Line 9" softkey2 label: “411”

Parameter	*softkeyN value*	Configurable through the configuration files only
Description		If the softkey is of type, *line* then value should be the line number that this soft key represents, from 5 up to 9 (1-4 are already hardcoded as the L1, L2, L3 and L4 hard key line/call appearances). If the softkey is of type, *speeddial* then value should be the number to speed dial.
Format		Text
Default Value		Not Applicable
Range		*line* or *speeddial*. *N* in the *softkeyN value* ranges from 1 to 18
Examples		softkey1 value: 9 softkey2 value: 411

Firmware Upgrade

The 480i phone uses TFTP to download files and upgrade its firmware. A TFTP server should host the firmware and other related configuration files. The TFTP server should be ready and be able to accept connections anonymously (without a requirement for a user name and password). See **Appendix C** for information on setting up a TFTP server.

You can download the firmware stored on the TFTP server in one of two ways, by either resetting the phone through the options list of the 480i or by activating a firmware download through the web client. Resetting the phone will force the phone to check for both firmware and configuration files stored on the TFTP server.

Warning: Do not reset or turn off the phone until the download is complete.

From the 480i phone:

1. Press the Options button to enter the Options List.
2. Select option **10. Phone Status** to enter the Phone Status option.
3. Select option **3. Reset Phone**.
4. Press the **Reset** softkey to reset the phone.
5. Press the **Cancel** softkey to cancel the current operation.

From the web client:

1. Click on the **Firmware** sub-category under the **Admin** main category.
2. Enter the administrator name and password when prompted (the default admin name is "admin" and password is 22222).
3. In the "Firmware" field, enter the name of the firmware file that the phone should be upgraded with, as shown in figure 1 on the following page. This name must match the actual name of the firmware file residing on your TFTP server.
4. In the "TFTP server IP" field enter the IP address of the computer where the TFTP server is located.
5. After entering the information into the appropriate fields click on the "Download Firmware" button. This will start the upgrade process. If the upgrade was successful you will be presented the message "Firmware upgrade successful" as shown in figure 2.

Figure 1

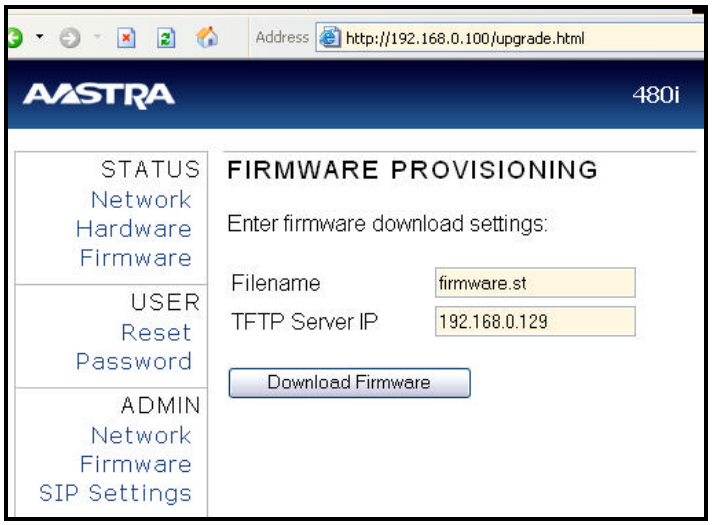


Figure 2

Troubleshooting

This section describes solutions to some most commonly occurring problems.

Why does my phone display "Application missing"?

If you have experienced networking issues while the phone was downloading the application from the TFTP server, it is possible that the phone can no longer retrieve the required firmware file. In the event that the phone is no longer able to communicate with the TFTP server in its attempt to re-download the firmware and the phone cannot locate the application locally, this message will be displayed.

The phone will display the following: "Recovery web-client at: <*IP Address*>". The IP Address displayed is the IP address of the phone. If the phone is unable to receive an IP from the DHCP server or has lost its record of its static IP, the phone will auto-assign itself the default IP 192.168.0.50.

To recover the firmware for your phone in this circumstance, please perform the following:

1) Launch your web browser on your computer. Please note that your computer will need to be on the same network as your IP phone.

2) In the URL, type: "http://<*IP Address*>" (where IP Address is the IP Address displayed on the phone). Your browser will launch the **Aastra 480i IP Phone Firmware Recovery** page.

3) Enter the name of the firmware file that is on the TFTP server and ready for download. E.g. "firmware.st".

4) Enter the IP of the TFTP server.

5) Press the Download Firmware button.

Please ensure that the TFTP server is running and accessible on the network. If the firmware file is correctly located on the running TFTP server, the phone will locate the file and reload the application onto the phone.

How to reset the 480i phone?

From the 480i phone:

1. Press the Options button to enter the Options List.
2. Select option **10. Phone Status** to enter the Phone Status option.
3. Select option **3. Reset Phone**.
4. Press the **Reset** softkey to reset the phone.
5. Press the **Cancel** softkey to cancel the current operation.

From the web client:

1. Click on the Reset sub-category under the USER main category.
2. Enter the administrator level user name and password when prompted.
3. On the web page that just opened click on the **Reset** button to reset the phone.

Why does my phone display the "No Service" message?

The phone willl display the "`No Service`" message if the SIP settings have not been set up correctly. Check that the SIP settings are correct in the phone. If using the configuration files, this could be a formatting or syntax error. For example, when entering the perameter "SIP line1 user name:5551231234", you cannot use formatting symbols such as "-" as in "555-123-1234" to format the number or the phone will not recognize it.

How to set the 480i phone to factory default?

From the 480i phone:

1. Press the Options button to enter the Options List.
2. Select option **10. Phone Status** to enter the Phone Status options list.
3. Select option **4. Factory Default**.
4. Enter the administrator password and press the **Enter** softkey.
5. Press the **Default** softkey to restore the 480i to the factory's default settings.
6. Press the **Cancel** softkey to cancel the operation.

How to reset a user's password?

If a 480i user has forgotten the password the following steps can be performed to reset the password.

From the web client:

1. Click on the Password sub-category under the USER main category.
2. Enter the administrator level user password in the Current Password field. Enter the new password for the user (the user's name for whom the password is being modified is displayed beside the User Name field on the current page). Re-enter the password to confirm the new password.
3. Click on the Set Password button to complete the operation.

The user password can also be reset through the configuration files. See the section *'Setting Parameters through the Configuration Files – Network Settings*" in this guide for more information.

Appendix A: Configuring the 480i at the Asterisk IP PBX

The following configuration illustrates how to create a user with an extension to make and receive calls using Asterisk as the PBX. This configuration is defined in the "sip.conf" file present along with the other configuration files that are created when Asterisk is installed. Usually, the configuration files can be found at the "/etc/asterisk" directory.

```
;This is used in the "extensions.conf" file to identify this
;physical phone when issuing Dial commands.
[phone1]

;The type to use for the 480i is "friend".
;"Peer" is used when the Asterisk is contacting a proxy,
;"user" is used for phones that can only make calls
;and "friend" acts as both a peer and a user.
type=friend

;If your host has an entry in your DNS then you just enter the
;machines name in the host= field.
host=dynamic
defaultip=192.168.1.1   ;default IP address that the phone is
                        ;configured to

;The password that phone1 will use to register with this PBX
secret=1234

dtmfmode=rfc2833        ;Choices are inband, rfc2833, or info
mailbox=1000            ;Mailbox for message waiting indicator

;If a phone is not in a valid context you will not be
;able to use it. In this example 'sip' is used. You can use
;whatever you like, but make sure they are the same, you will
;need to make an entry in your extensions.conf file (which we
;will get to later)
context=sip
callerid="Phone 1" <1234>
```

After this is defined in the "sip.conf" file, some information has to be entered in the "extensions.conf" file present in the same directory as the "sip.conf" file. The following definition in the file under the [sip]section/context completes defining the extension for the 480i phone.

```
exten => 1234,1,Dial(SIP/phone1,20)
```

This definition completes configuring the 480i phone at the IP PBX system. To verify whether the extension has been successfully registered at the IP PBX system, enter the Asterisk console and reload Asterisk. Use the command "sip show peers" at the console. This will display the extensions that are registered at the IP PBX system.

```
Name/username    Host        Mask                 Port   Status
phone1/phone1  192.168.1.1  (D) 255.255.255.255   5060   Unmonitored
```

This completes the basic set-up for the 480i phone with 1234 extension at the Asterisk IP PBX system. Refer to Asterisk documentation for set-up on extended or advanced features such as voice mail and call forwarding, etc.

Appendix B: Sample Configuration Files

This section consists of the sample configuration files necessary to configure the 480i IP Phones. The general format is similar to configuration files used by several Unix-based programs. Any text following a number sign (#) on a line is considered to be a comment, unless the # is contained within double-quotes. Currently, Boolean fields use 0 for false and 1 for true.

aastra.cfg

```
#        Generic SIP Sample Configuration File
#        ====================================
#     Date: August 10, 2005
#     File: Sample "aastra.cfg" file

#    Notes:
#    The general format used here is similar to configuration files used by
#   several UNIX-based  programs. Any text following a number sign (#) is
#   considered to be a comment, unless the number sign is contained within
#   double-quotes ("#") where it is considered to be a pound. For Boolean fields,
#    0 = false, # 1 = true.

#    Comments:
#    This file contains sample configurations for the "aastra.cfg" file. The
#    settings included here are examples only. You should change/comment the
#    values to suit your requirements.
#    The Aastra 480i IP Phones will download 2 configuration files from the
#    TFTP server while restarting; the "aastra.cfg" file and the "[mac].cfg"  file.
#     These two configuration files can be used to configure all of the settings
#    of the Aastra 480i IP  Phone with the exception of assigning a static IP
#    address to a phone and line settings, which can only be  set in the
#    "<mac>.cfg" file.

#    The "aastra.cfg" file configures the settings server wide, while the
#   "[mac].cfg" file configures only the  phone with the MAC address for which
#   the file is named (for example, "00085d0304f4.cfg"). The settings in the
#   "aastra.cfg" file will be overridden by settings which  also appear in the
#   "<mac>.cfg" file.
```

```
#    DHCP Setting
#    ============

dhcp: 1                    # DHCP enabled.
#  DHCP:
#       0 = false, means DHCP is disabled.
#       1 = true, means DHCP is enabled.

#    Notes: If DHCP is disabled, the following network settings will
#    have to be configured manually either through the configuration
#    files, the Options List in the phone, or the Web Client: IP
#    Address (of the phone), Subnet Mask, Gateway, DNS, and TFTP
#    Server.

#-------------------------------------------------------------------
```

```
#    Network Settings
#    ================

#    Notes: If DHCP is enabled, you do not need to set these network
#    settings

#ip:          # This value is unique to each phone on a server and should
#               be set in the "<mac>.cfg" file if  setting this manually.


#  subnet mask:
#default gateway:
#dns1:
#dns2:
#tftp server:

#    Additional Network Settings:
    ==========================
#sip registration period: 300     # Eg. every 300 seconds, a re-register
                                  # request is sent to the SIP server.
#sip rtp port: 3000               # Eg. RTP packets are sent to port 3000.
```

```
#    SIP registrar and Proxy Server Settings
#    ========================================

#sip proxy ip:                  # IP or domain name of proxy server.
#sip proxy port: 5060           # 5060 is set by default.
#sip registrar ip:              # IP or domain name of registrar.
#sip registrar port: 5060       # 5060 is set by default.

sip digit timeout: 4            # dialing behavior

#---------------------------------------------------------------------
#    Time Server Settings
#    ====================
#  Notes: If the time server is disabled you will need to enter the IP
# address of at least one time server.  If the time server is disabled, the
# time can be set manually through the phone's options list under
# option "2. Time and Date".

#time server disabled: 1        # Time server disabled.
#time server1:                  # Enable time server and enter at
#time server2:                  # least one time server IP address.
#time server3:
#  Time Server Disabled:
#       0 = false, means the time server is not disabled.
#       1 = true, means the time server is disabled.

#---------------------------------------------------------------------

#    Line Settings
#    =============

#    Lines should be set in the <mac>.cfg file since these settings
#    are unique to each phone. See the sample "<mac>.cfg" file for
#    for more information.

#---------------------------------------------------------------------
```

```
#    Softkey Settings
#    =================

#   Softkeys can be set either server wide or unique to each phone.
#   Setting softkeys as line/call appearances should be done in the
#   "<mac>.cfg" file, since these are unique to each phone.

#   Notes: There are a maximum of 18 softkeys that can be configured
#   on the 480i IP Phone. These can be set up through either of the 2
#   configuration files, depending on whether this is to be server
#   wide ("aastra.cfg") or phone specific ("[mac].cfg").
#   Each softkey needs to be numbered from 1 - 18, for example
#   "softkey12 type: speeddial". Softkeys can be set up as speeddials, dnd,
#   or as  additional line/call appearances, and have a type,
#  label and value  associated with each as seen here in the default softkey
#  settings.
#   SOFTKEY TYPE: "speeddial", "line", "dnd"
#  SOFTKEY LABEL: Alphanumeric name for the softkey. The maximum
#                 number of characters for this value is 10 for
#                 speeddials and 9 for lines.
#  SOFTKEY VALUE: If a softkey type is speeddial, any DTMFs (from
#                  0 - 9, *, "#") or a comma (,) for 500ms pause and
#                 'E' for On-hook can be set for the value. If softkey
#                 type is Line, enter value from 5 up to 9 (1-4 are
#                 already hardcoded as the L1, L2, L3 and L4 hard
#                 key line/call appearances).
#
#
# Example Softkey Speed Dials
# ============================
softkey1 type: speeddial
softkey 1 label: "Ext Pickup"
softkey 1 value: *8

softkey 2 type: speeddial
softkey 2 label: "Call Return"
softkey 2 value: *69
```

```
softkey3 type: speeddial
softkey3 label: "Call Forward On"
softkey3 value: *72

softkey4 type: speeddial
softkey4 label: :  “Call Forward Off”
softkey4 value: *73

softkey5 type : dnd
# The phone automatically populates the value and label parameters for
# the dnd softkey. Defining them is unnecessary.

Softkey6 type: speeddial
Softkey6 label: "CLIDBlock"
Softkey6 value: *67

Softkey7  type: speeddial
Softkey7  label:  "VoiceMail"
Softkey7  value: *89
```

```
# Example Softkey Line/Call Appearances
# For the examples of softkey line/call appearances,
please refer to the sample  “<mac>.cfg”
# file.
```

<mac>.cfg

```
#          Generic SIP Sample Configuration File
#          ====================================

#     Date: May 11th, 05

#     File: Sample “<mac>.cfg” file

#  Comments:
#    This file contains sample configurations for the “<mac>.cfg”
#    file. Please rename this file with the MAC address (with the
#    dashes removed) of the specific 480i device that you want to
#    configure, for example “00085d03059f.cfg”.
```

```
#    Settings that have already appeared in “aastra.cfg” will be
#    overridden by those in this file.

#    Parameters can be set in either the “<mac>.cfg” file or the
#    “aastra.cfg” file, with the exception of assigning a static
#    IP address to a phone which can only be set in the “<mac>.cfg”
#    file. For more details on sample settings see the sample
#    “aastra.cfg” file.
#-------------------------------------------------------------------
#     DHCP Setting
#     ============
#    Notes: To set a static IP address, you must first disable DHCP. If
#    DHCP is disabled, you will also need to manually configure
#   Subnet Mask, Gateway, DNS, and TFTP Server settings.

#      DHCP:
#       0 = false, means DHCP is disabled.
#       1 = true, means DHCP is enabled.

#dhcp: 0                    # DHCP disabled.
```

```
#    Network Settings
#    ================

#ip:            # This value is unique to each phone on a server
                # and should be set in the “<mac>.cfg” file if
                # setting this manually.
#-------------------------------------------------------------------
#    Line Settings
#    =============
#    Lines should be set in the <mac>.cfg file since these settings are
#    unique to each phone.
#     Notes: Setting parameters for lines 1 - 4 configures the 4   line/call
#    appearance hard keys on the 480i. Setting parameters for lines 5 – 9
#    configures the phone for additional line/call appearances that can be
#    set  up as softkeys.
#    The maximum number of line/call appearances that can be configured
#    for the  480i is 8 or 9, depending on how the lines have been configured.
```

```
#  If all line/call appearances have been set up for the same number, a total
#  of 9 lines can be configured. If all line/call appearances have been set up
#  between two different numbers, a total of 8 lines can be configured. This
#  means that when all line/call appearances are in use, 1 is connected
#  while the rest are held. No further outgoing or incoming calls can be
#  made until one of the line/call appearances becomes available.
```

```
#  Explanation of Settings with Line 1 as Example
#  ==============================================

#sip line1 auth name:     # SIP Registrar request authorization name.
#sip line1 password:      # SIP Registrar request passcode.
#sip line1 user name:     # This parameter value is used by the480i
                          # in the From header field of the outgoing
                          # SIP packet. It may be replaced by your
                          # SIP proxy server.
#sip line1 display name:  # Name used for SIP messages.
#sip line1 screen name:   # User's name seen on the idle screen of the
                          # user's phone.

#Example Settings for Lines 2-9
#==============================================
# sip line2 auth name: authname
#sip line2 password: password
#sip line2 username: 5551231234
#sip line2 display name: Joe Smith
#sip line2 screen name: Joe Smith

#sip line3 auth name: authname
#sip line3 password: password
#sip line3 user name: 5551231234
#sip line3 display name: Joe Smith
#sip line3 screen name: Joe Smith

#sip line4 auth name: authname
#sip line4 password: password
#sip line4 user name: 5551231234
#sip line4 display name: Joe Smith
#sip line4 screen name: Joe Smith
```

#sip line5 auth name: authname
#sip line5 password: password
#sip line5 user name: 5551231234
#sip line5 display name: Joe Smith
#sip line5 screen name: Joe Smith

#sip line6 auth name: authname
#sip line6 password: password
#sip line6 user name: 5551231234
#sip line6 display name: Joe Smith
#sip line6 screen name: Joe Smith

#sip line7 auth name: authname
#sip line7 password: password
#sip line7 user name: 5551231234
#sip line7 display name: Joe Smith
#sip line7 screen name: Joe Smith

#sip line8 auth name: authname
#sip line8 password: password
#sip line8 user name: 5551231234
#sip line8 display name: Joe Smith
#sip line8 screen name: Joe Smith

#sip line9 auth name: authname
#sip line9 password: password
#sip line9 user name: 5551231234
#sip line9 display name: Joe Smith
#sip line9 screen name: Joe Smith

```
# Softkey Settings
#    ================
#  Softkeys can be set either server wide or unique to each phone.
#  Setting Softkeys as line/call appearances should be done in the
# "<mac>.cfg" file, since these are unique to each phone.

#    Notes: There are a maximum of 18 soft keys that can be configured
#    on the 480i phone. These can be set up through either of the 2
#    configuration files, depending on whether this is to be server
#    wide ("aastra.cfg") or phone specific ("[mac].cfg").
#    Each softkey needs to be numbered from 1 - 18, for example
#    "softkey12 type: speeddial". Softkeys can be set up as speeddials,
#  dnd,  or as  additional line/call appearances and have a
#   type, label and value associated with it as seen here in the default
# softkey settings.

#    SOFTKEY TYPES: "speeddial", "line", "DND."
#    SOFTKEY LABEL : Alpha numeric name for the softkey.
#                            The maximum number of characters for this value
#                             is 10 for speeddials and 9 for lines.
#   SOFTKEY VALUE: If a softkey type is speeddial, any DTMFs (from
#                           0 - 9, *, "#") or a comma (,) for 500ms pause and
#                           'E' for On-hook can be set for the value. If softkey
#                           type is Line, enter value from 5 up to 9 (1-4 are
#                             already hardcoded as the L1, L2, L3  and L4 hard
#                             key line/call appearances).
#   # ====================
#Softkey Speeddials
#  ====================
#     For the default softkey speed dials, please refer to the sample
#     "aastra.cfg" file.

# Example Softkey Line/Call Appearances
# ====================================
#softkey1 type: line
#softkey1 label: "Line 5".
#softkey1 value: 5

#softkey2 type: line
#softkey2 label: "Line 6"
#softkey2 value: 6
```

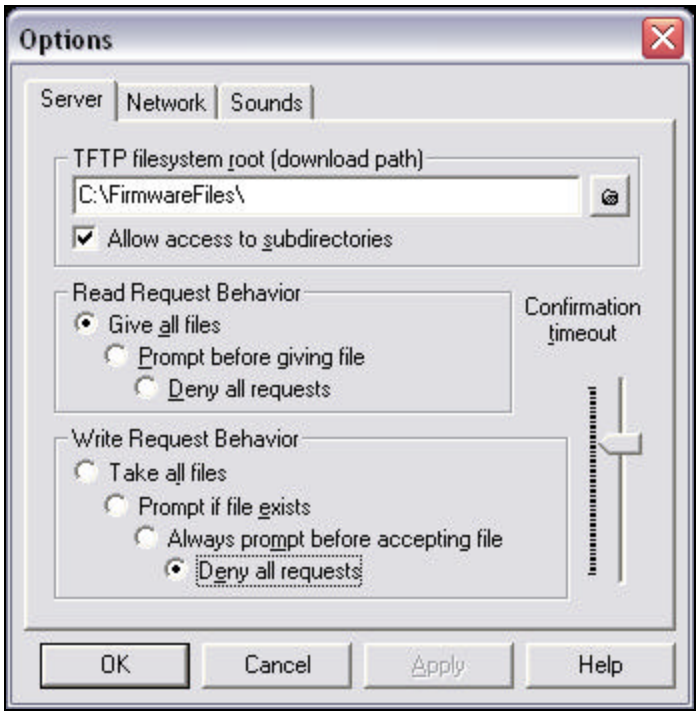
```
#softkey3 type: line
#softkey3 label: “Line 7”
#softkey3 value: 7


#softkey4 type: line
#softkey4 label: “Line 8”.
#softkey4 value: 8


#softkey5 type: line
#softkey5 label: “Line 9”
#softkey5 value: 9
# ----------------------------------------------------------------------
```

Appendix C: TFTP Server Set-up

There are a number of TFTP servers available. PumpKIN is one of such TFTP servers. Use the keywords "pumpkin TFTP server" on Google and you should get the web site where you can download the software from. Installing PumpKIN is straightforward. To configure the directory from where you would be serving the files, click on the Options button on PumpKIN's main window as shown in the following figure.



It is important to select the "Give all files" radio button under the "Read Request Behavior" category. This makes the files to be served without any manual intervention when requested.

If you want to prevent users from writing files to the directory select the "Deny all requests" in the "Write Request Behavior" category. Click the OK button after you have entered all the required information. All the firmware files should be in the file system root directory. Currently we do not support downloads from files present in sub-directories. Consult PumpKIN's documentation if you need more information on how to set-up the TFTP server.

Limited Warranty

Aastra Telecom warrants this product against defects and malfunctions during a one (1) year period from the date of original purchase. If there is a defect or malfunction, Aastra
Telecom shall, at its option, and as the exclusive remedy, either repair or replace the telephone set at no charge, if returned within the warranty period.

If replacement parts are used in making repairs, these parts may be refurbished, or may contain refurbished materials. If it is necessary to replace the telephone set, it may be replaced with a refurbished telephone of the same design and color. If it should become necessary to repair or replace a defective or malfunctioning telephone set under this warranty, the provisions of this warranty shall apply to the repaired or replaced telephone set until the expiration of ninety (90) days from the date of pick up, or the date of shipment to you, of the repaired or replacement set, or until the end of the original warranty period, whichever is later. Proof of the original purchase date is to be provided with all telephone sets returned for warranty repairs.

Exclusions

Aastra Telecom does not warrant its telephone sets to be compatible with the equipment of any particular telephone company. This warranty does not extend to damage to products resulting from improper installation or operation, alteration, accident, neglect, abuse, misuse, fire or natural causes such as storms or floods, after the telephone is in your possession.

Aastra Telecom shall not be liable for any incidental or consequential damages, including, but not limited to, loss, damage or expense directly or indirectly arising from the customers use of or inability to use this telephone, either separately or in combination with other equipment. This paragraph, however, shall not apply to consequential damages for injury to the person in the case of telephones used or bought for use primarily for personal, family or household purposes.

This warranty sets forth the entire liability and obligations of Aastra Telecom with respect to breach of warranty, and the warranties set forth or limited herein are the sole warranties and are in lieu of all other warranties, expressed or implied, including warranties or fitness for particular purpose and merchantability.

Warranty Repair Services

Should the set fail during the warranty period;

In North America, please call:
1-800-574-1611 for further information.

Outside North America, contact your sales representative for return instructions.
You will be responsible for shipping charges, if any. When you return this telephone for warranty service, you must present proof of purchase.

After Warranty Service

Aastra Telecom offers ongoing repair and support for this product. This service provides repair or replacement of your Aastra Telecom product, at Aastra Telecom's option, for a fixed charge. You are responsible for all shipping charges. For further information and shipping instructions;
In North America, contact our service information number: 1-800-574-1611.
Outside North America, contact your sales representative.

NOTE: Repairs to this product may be made only by the manufacturer and its authorized agents, or by others who are legally authorized. This restriction applies during and after the warranty period. Unauthorized repair will void the warranty.

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